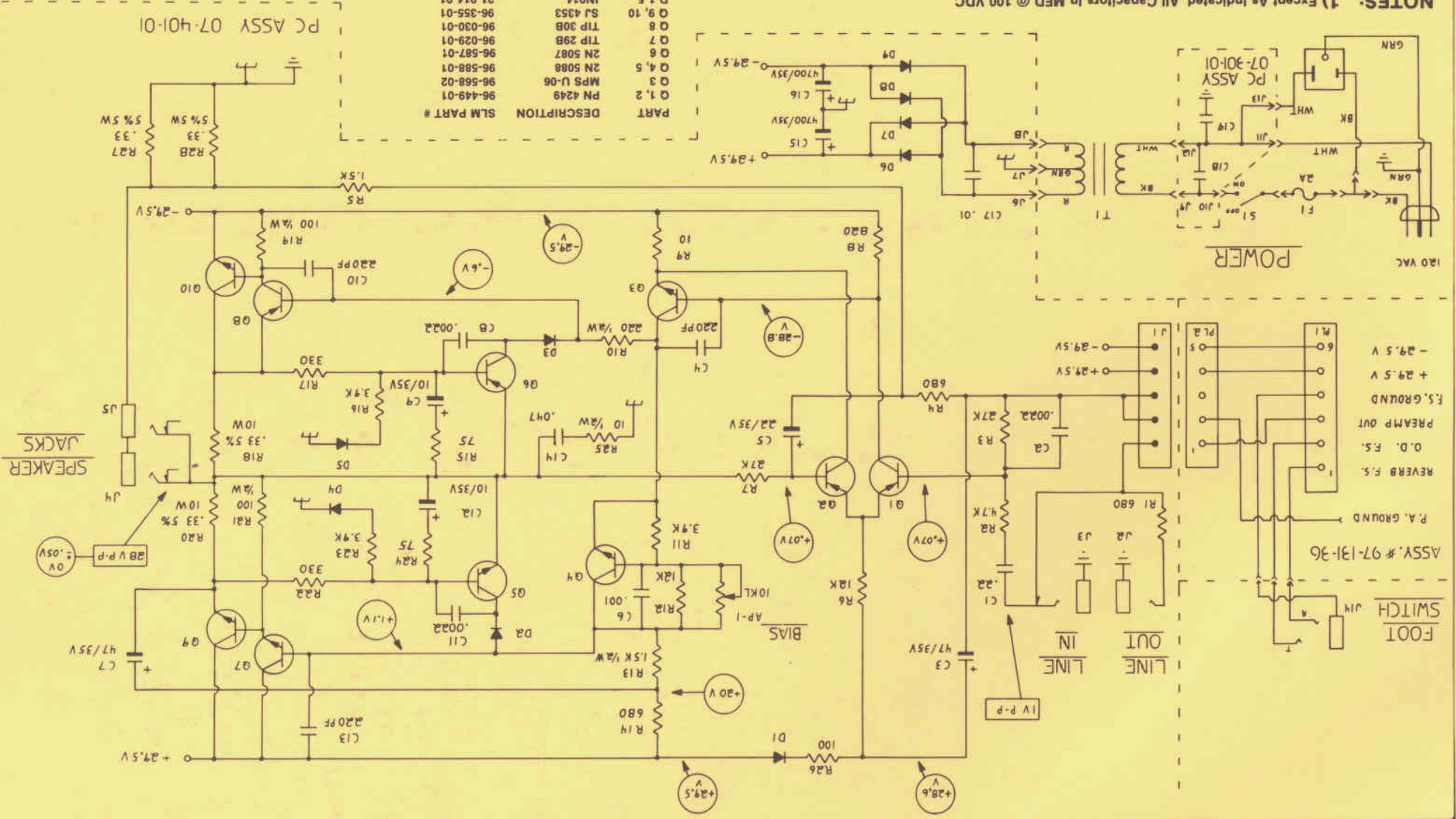


CRAVE Sprint

Series
CR-160 AMPLIFIER

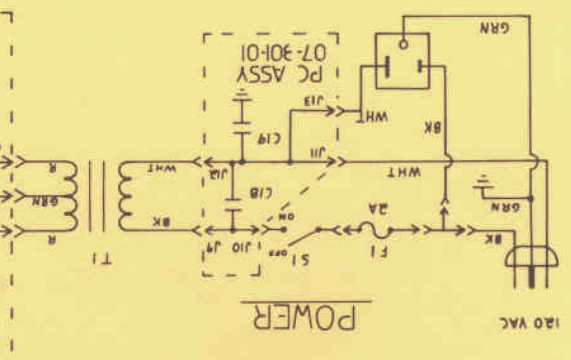
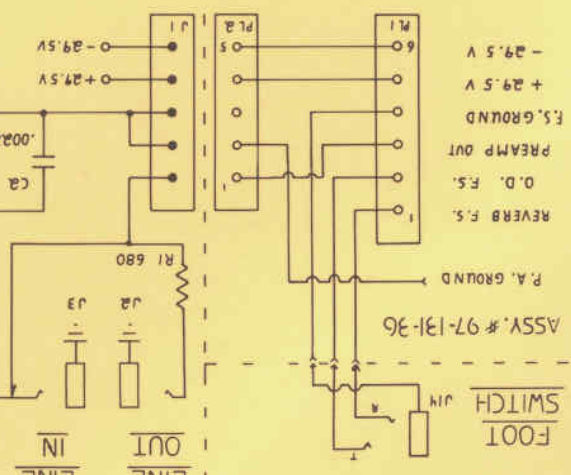
PART NO. 47-560-01

CR-160 POWERAMP/SUPPLY
SLM ELECTRONICS
1400 FERGUSON
ST. LOUIS, MO. 63133
DWG #16-161-01 2 of 2
9/14/81



PART	DESCRIPTION	SLM PART #
Q1, 2	PN 4249	96-449-01
Q3	MPS U-06	96-588-02
Q4, 5	2N 5088	96-588-01
Q6, 8	2N 5087	96-587-01
Q7	TIP 298	96-029-01
Q8	TIP 308	96-030-01
Q9, 10	SJ 4353	96-355-01
D1-5	1N914	21-914-01
D6-9	INS392	21-192-01
J1	5 PIN R.A.	17-311-05
J2-5	112 APC	39-012-01
J6-13	.250" R.A. TAB	17-901-01
J14	12B	39-015-01
AP-1	10K Ω TRIMMER	71-103-01
T1	TRANSFORMER	97-115-10
S1	C102 SW.	88-210-01
C18, 19	.0027 (U.L.)	10-272-01

NOTES: (1) Except as indicated, All Capacitors in MFD @ 100 VDC.
All Resistors in Ohms @ 1/4 Watt 5% Tolerance.
(2) Voltages Measured With: 1 Megohm Input Oscilloscope (AC), 10 Megohm Input D.V.M. (DC). Take Loading into Account If Using Other Equipment.
AC Signal Voltage: 1 KHZ Sine Wave Input, 4 OHM Load.
DC Voltage: No Signal, No Signal Input.
(3) Bias Voltage: No Signal, No Load, @ 120 VAC Line
At Turn-On: 3.5 MV Across R20
After 30 Min.: 6 MV Across R20



PC ASSY 07-401-01

SPEAKER JACKS

FOOT SWITCH

ASSY. # 97-131-36

F.A. GROUND
REVERB F.S.
O.D. F.S.
PREAMP OUT
F.S. GROUND
+29.5V
-29.5V

CRATE *Sprint* series



We would like to take this opportunity to thank you for selecting a Crate product, and to advise you of our commitment to the design and manufacture of only the finest musical instrument amplification equipment; built for you, the musicians.

You have purchased one of the most innovative sound amplification devices available today. Your Crate amplifier gives you more performance features than ever before, features that you the musician have asked for.

Your Crate amplifier is an American product manufactured at the Crate factory located in St. Louis, Mo. Only the finest available components and materials are used in the manufacture of each Crate amplifier. All Crate amplifiers are subjected to seven or more inspection and testing steps to assure you of a high quality product. The final test for each amp is conducted by a trained musician with the instrument the amplifier was designed for. Any Crate that does not meet the standards of his discriminating ear will not be passed.

Since all Crate products are designed, developed, and manufactured through the co-operative efforts of engineers and professional musicians, the end result is a product that responds to the musician's audio requirements, and a product that will serve your needs for years to come.

Model # CR-160 Guitar Amplifier Features:

CR-160 Black Tolex Unit	CR-160C Blk. Tolex w/Celestion Spk.
CR-160W Optional Pine Cabinet	CR-160WC Pine Cabinet w/Celestion Spk.
Front Panel (Left to Right)	Rear and Under Panel (right to left)
Hi Input	Reverb—Distortion Ft. Sw. Jack
Lo Input	Line Out/Effects Send (under panel)
Gain Control	Line In/Effects Return (under panel)
Bass Control	Ext. Spk. Jack (under panel)
Mid Control	Int. Spk. Jack (under panel)
Treble Control	A-C Conv. Outlet
Bright Sw.	External Fuse Holder
	9' Heavy Duty A-C Cord

LIMITED WARRANTY

SLM Electronics, a division of St. Louis Music Supply Company, warrants this electronic equipment for one (1) year from date of purchase to the original purchaser and is not transferable. This warranty includes defects in workmanship and materials within this one (1) year period except for tubes, meters and speakers covered separately. Tubes and meters will carry a 90 day warranty.

Excluded from this warranty are defects caused by wear and tear, misuse, neglect, alterations or modifications, or any act of nature. Such determinations will be made by SLM Electronics.

All parts costs will be borne by SLM Electronics within the warranty period. Labor costs will be covered within this warranty period according to rate schedules established by SLM Electronics. Warranty service will be done either at SLM Electronics or an authorized field service center. Transportation charges involved in warranty service are the sole responsibility of the purchaser.

Crate speakers are guaranteed for ninety (90) days against manufacturing defects. Realizing that any speaker can be overloaded or misused causing failure, Crate will replace it with a speaker of the same type at a price equal to one-half of the then current suggested list price of the new speaker for life from date of registration, regardless of reason.

This warranty only applies if this piece of Crate equipment was purchased from an authorized Crate Dealer. If this Crate piece of equipment is to be returned to SLM Electronics, it must be accompanied with an authorized Crate Dealer's instructions as to needed repairs and a SLM Electronics return authorization.

There are no other warranties expressed or implied other than those stated in this warranty. This warranty registration card must be filled out and returned to us within ten (10) days after purchase. We reserve the right to repair or replace this piece of Crate equipment at our option.

SLM ELECTRONICS division of ST. LOUIS MUSIC
1400 Ferguson Ave. • St. Louis, Mo. 63133

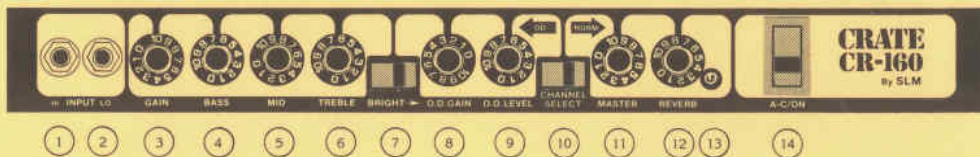
DETAILED SPECIFICATIONS:

OUTPUT POWER RATING	60 Watts RMS @ 5% THD (4 Ohms—120 VAC Line)	Input Power Requirements	120 Vac, 60 Hz. 110 Watts Max.
SPEAKER SIZE AND RATING	12" Dia. Special Design 4 Ohm 1 1/2" Alum. voice coil, 30 oz. mag. Power handling/60 watts RMS 120 watts EIA	Fuse, Rating and Type	2 Amp, Fast Acting, External Fuseholder
BASS CONTROL	±15DB Boost/Cut @ 80 Hz. (500 Hz. action point)	Line Out Jack	1.6 Volts peak to peak at full rated RMS output w/10K load impedance
MID CONTROL	±12 DB Boost/Cut @ 1K Hz. (2.5 octave bandwidth)	Line In Jack	1.6 volts in peak to peak for full rated RMS output
TREBLE CONTROL	±15 DB Boost/Cut @ 4K Hz. (500 Hz. action point)	External Speaker	4 OHM minimum impedance
BRIGHT SWITCH	+ 8 DB Boost @ 4K Hz. (3 DB @ 650 Hz.)	Cabinet Size and Weight	17-3/4" H. x 17-3/4" W. x 9-1/2" D. CR-160 34 lbs.—CR-160W 25 1/2 lbs.— CR-160C 38 1/2 lbs.—CR-160WC 30 lbs.
INPUT IMPEDANCE	220K OHMS @ Hi input jack 44K OHMS @ Lo input jack (Lo input reduces gain 6 DB)	Shipping Weight	CR-160 37 lbs.—CR-160W 28 1/2 lbs.— CR-160C 41 1/2 lbs.—CR-160WC 33 lbs.
MAXIMUM SIGNAL LEVEL ACCEPTED	10 Volts peak to peak (Hi input) 20 Volts peak to peak (Lo input)	CAUTION: To reduce the risk of electric shock, do not remove chassis. No user serviceable parts inside. Refer servicing to qualified service personnel. To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.	
TOTAL SYSTEM GAIN	84 DB @ 1 K. Hz. with all tones @ "Flat" or "0" setting		
SIGNAL TO NOISE RATIO	65 DB—with all gains/levels @ mid rotation, all tones @ full boost, bright "OFF", reverb "0", overdrive mode. 4 OHM load	CAUTION: To reduce the risk of fire, replace only with same type 2 amp 250V. normal blow 3AG fuse. Disconnect line cord before replacing fuse.	
A-C CONV. OUTLET RATING	300 watts maximum		

ALL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

OPERATION and MAINTENANCE

FRONT PANEL VIEW



INPUTS:

1) HIGH GAIN JACK (Hi):

This input is to be used with most guitars. It will provide the player with optimum performance of his instrument.

2) LOW GAIN JACK (Lo):

If unwanted distortion is present when the guitar is plugged into the High Gain Jack, this may be remedied by using the low input. The gain as well as the distortion will be reduced.

NORMAL CHANNEL:

(Channel selector switch to the right or "norm" position). NOTE: For best results, it is suggested the Normal (clean) channel settings should be made prior to Overdrive Channel adjustment.

3) GAIN:

When playing through the Normal (clean) Channel, the volume at which the CR-160 will operate is determined with this knob, as well as with the MASTER VOLUME CONTROL (#11). This gain control will also retain operation when the Overdrive Channel is in use.

EQUALIZATION:

(All EQ controls will operate with either channel selected).

4) BASS CONTROL (Bass):

The desired amount of "bottom" or "warmth" may be increased or decreased with this knob.

5) MIDRANGE CONTROL (Mid):

The tonal qualities of the Midrange are very important to a good guitar sound. This knob can "thin out" the sound when turned down, or "fatten up" the tone when larger amounts are used.

6) TREBLE CONTROL (Treble):

This knob affects the upper harmonic range of the guitar. In the "Overdrive" channel it brings out the "bite" or "edge" of the guitar, while in the "Normal" (clean) channel it sharpens or adds "crispness" to the sound. For additional effect, use this control in conjunction with the Bright Switch (#7).

7) BRIGHT SWITCH (Bright):

This switch affects the brilliance of the guitar sound by adding additional "bite" or sharpness.

OVERDRIVE CHANNEL:

NOTE: The OD Gain (#8) and the OD Level (#9) controls will operate only when the Channel Select Switch (#10) is in the left or "OD" position.

8) OVERDRIVE GAIN (OD Gain):

This knob determines the amount of overdrive or distortion. By increasing the gain, the player will increase the amount of distortion and sustain of the guitar.

9) OVERDRIVE LEVEL (OD Level):

Use of this knob, when the Overdrive channel operation has been selected, will allow the player to adjust the volume or balance of the Overdrive sound in comparison to the clean channel.

10) CHANNEL SELECTOR SWITCH (Channel Selector OD):

This switch offers manual selection of Overdrive or clean channels. Overdrive is in the left position, while the normal or clean channel is obtained with the switch to the right. Channel selection also be achieved by the use of a footswitch plugged into the footswitch jack (#22) of the rear panel. When using this remote footswitch, the Channel Selector Switch (#10) must be in the right or Normal position.

11) MASTER VOLUME (Master):

The overall volume of the CR-160 is controlled at this point. It determines the volume of both the normal and the Overdrive channels.

12) REVERB (Reverb):

This control allows the player to alter the apparent acoustical qualities of a room. From a very flat or "dry" effect with the control off, to that of a concert hall when larger amounts are added.

POWER:

13) ON/OFF LED INDICATOR:

The amplifier is on when this L.E.D. is lit.

14) ON/OFF SWITCH:

This is a two position switch. The down position will turn the unit on, while the up position is off.

15) POWER CORD:

Be sure the amplifier is properly plugged into a safely wired outlet before use.

16) FUSE HOLDER:

This is a safety valve for the amplifier. Should problems occur, check the fuse. If problems persist after fuse replacement, consult a repairman.

17) AC OUTLET:

This outlet is for additional power needs, such as effects boxes or additional amplifiers. Be sure not to overload this outlet.

ADDITIONAL INPUTS AND OUTPUTS:

18) INTERNAL SPEAKER JACK:

This is the output for the amplifiers' self-contained speaker.

19) EXTERNAL SPEAKER JACK:

For additional speaker usage, connect to this speaker jack. Use only speakers of 4 ohms or higher impedance.

20) LINE IN:

This jack provides an input into the CR-160 power amplifier. It can be used as an effects loop return, or in stacking the amplifier with another pre-amp. The internal pre-amp of the amplifier is disconnected when using this jack.

21) LINE OUT JACK:

This output enables the player to link the CR-160 to other amplifiers for increased volume and coverage. Simply run a cord from the Line Out Jack to the input of another amplifier. In addition, this output can be used as an effects loop send.

EFFECTS LOOP OPERATION:

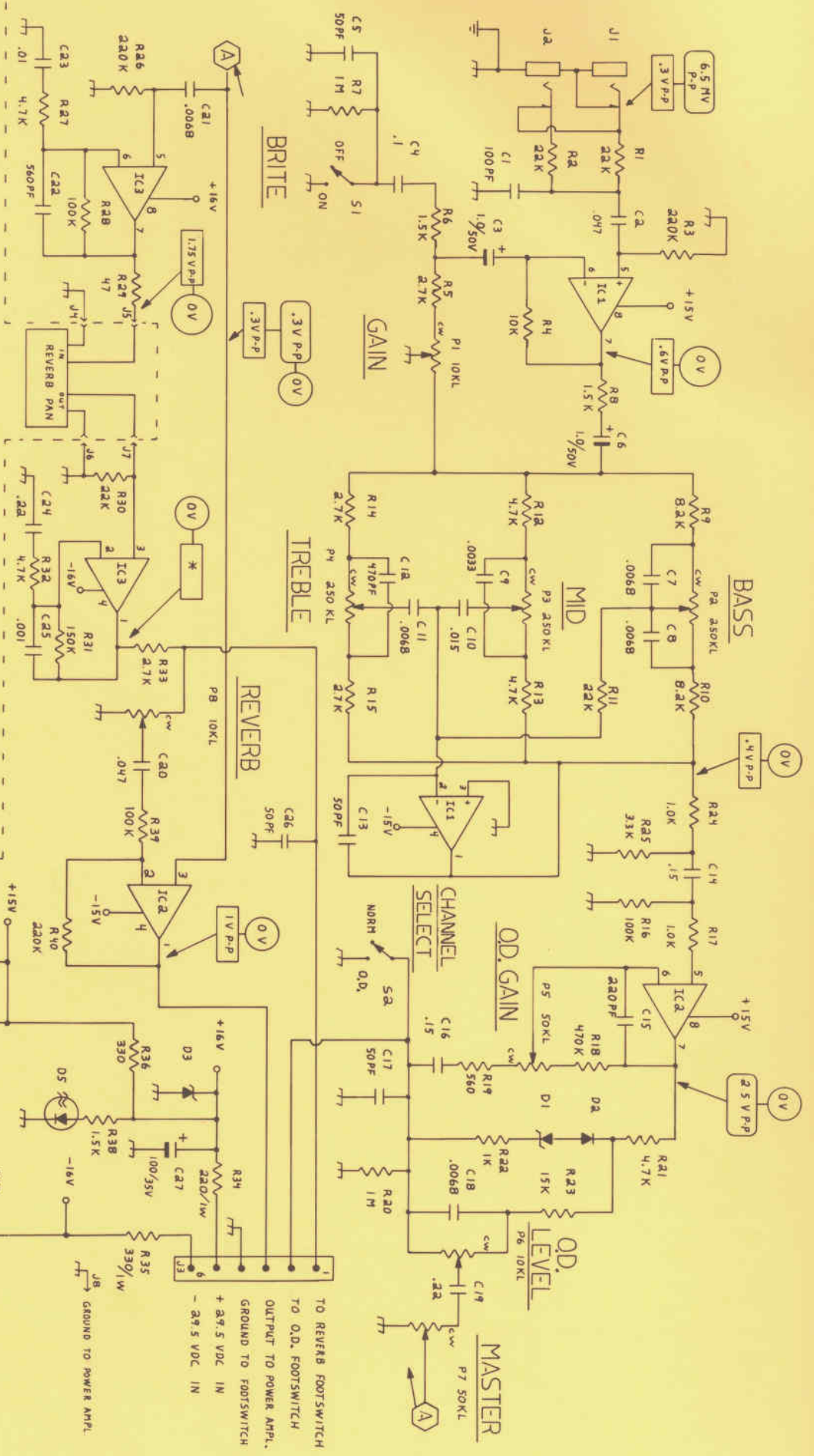
When the Line In and Line Out Jacks are properly connected to an external effects unit, an effects loop is created, and the amplifiers pre-amp signal will be routed to the effects unit and returned to the power amplifier input. Simply connect a cord from the Line Out Jack of the amplifier to the input or instrument jack of the effect, and an additional cord from the effect output or "To Amp" jack to the Line In Jack of the amplifier.

22) FOOTSWITCH JACK:

This jack is to be used for the Channel Selector Footswitch. When the optional footswitch is in use, the Channel Selector Switch (#10) must be in the Right or Normal position for proper operation.

REAR PANEL VIEW





NOTES:

- 1) Except As Indicated, All Capacitors in MFD @ 100 VDC, All Resistors in Ohms @ 1/4 Watt 5% Tolerance.
- 2) Voltages Measured With 1 Megohm Input Oscilloscope (AC), 10 Megohm Input D.V.M. (DC). Take Loading Into Account If Using Other Equipment.

- AC Signal Voltage: Normal Mode, Gain @ "5", Tones @ "0"
- Brite Off, Master @ "10", Reverb At "0", 1 KHZ Sine Wave Input.
- AC Signal Voltage: Conditions Same Except Unit In O.D. Mode, O.D. Gain @ "10", O.D. Level @ "5".
- DC Voltage: No Signal Input.

*Voltage Varies With Exact Frequency, Due To Pan.
20 MV To .4 V P-P Typical Extremes.

PART	DESCRIPTION	SLM PART #
D 1	IN 746	21-146-01
D 2	IN 914	21-914-01
D 3, D 4	IN 4745	21-145-01
D 5	LED ASSY	97-221-01
IC 1, 3	RC 4558	37-458-01
IC 2	TL 072	37-072-01
P 1, 6, 8	10 KL	70-132-01
P 2, 3, 4	250 KL	70-306-01
P 5, 7	50 KL	70-133-01
S 1, 2	J 102	88-102-01
J 1, J 2	RN 112 APC	39-012-02
J 3	6 POS HEADER	17-310-06
J 4-J 8	TAB	17-882-01
KNOBBS	5-0-5 (5)	45-700-01
KNOBBS	5-0-5 (3)	45-708-01
REVERB PAN		79-201-02

PC ASSY. 07-547-01

CR-160 PREAMPLIFIER

SLM ELECTRONICS
1400 FERGUSON
ST. LOUIS, MO. 63133

REV. 10/6/81
9/9/81 1 of 2

DWG. #16-161-01

TO REVERB FOOTSWITCH
TO O.D. FOOTSWITCH
OUTPUT TO POWER AMPL.
GROUND TO FOOTSWITCH
+ 29.5 VDC IN
- 29.5 VDC IN